Date Planned : __ / __ / __	Daily Tutorial Sheet-11	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Numerical Value Type	Exact Duration :_____

126. One mole of an ideal gas for which $C_v = 3R/2$ is heated irreversibly at a constant pressure of 1 atm from $25°C$ to $100°C$. Calculate ΔU.

127. The work done by a system is 8 joule, when 40 joule heat is supplied to it. Calculate the increase in internal energy of system.

128. A gas expands from $3\,dm^3$ to $5\,dm^3$ against a constant pressure of 3 atm. The work done during expansion is used to heat 10 mole of water of temperature 290 K. Calculate final temperature of water. Specific heat of water $= 4.184 J g^{-1} K^{-1}$.

129. An ideal monoatomic gas $(C_v = 1.5R)$ initially at 298 K and $1.013 \times 10^6 Pa$ pressure expands adiabatically until it is in equilibrium with a constant external pressure of $1.013 \times 10^5 Pa$. Calculate the final temperature of gas.

130. Calculate the change in entropy for the fusion of 1 mole of ice. The melting point of ice is 273 K and molar enthalpy of fusion for ice $= 6.0\,kJ\,mol^{-1}$.

131. A kettle containing 1kg of water is heated open to atmosphere until evaporation is complete. The work done during this process is :

132. 70 calories of heat is required to raise the temperature of 2 mole of ideal gas at constant pressure from $30°C$ to $35°C$. The amount of heat required to raise the temperature of same gas through $30°C$ to $35°C$ at constant volume is :

133. One mole of an ideal gas at 300K is expanded isothermally from an initial volume of 1 litre to 10 litre. The ΔU for this process is : $(R = 2\,cal\,K^{-1}\,mol^{-1})$

134. 2 mole of ideal gas at $27°C$ temperature is expanded reversibly from 2 litre to 20 litre. Find entropy change : $(R = 2\,cal/mol\,K)$

135. The molar heat capacity of water at constant pressure P, is $75\,J\,K^{-1}\,mol^{-1}$. When 1.0 kJ of heat is supplied to 100g of water which is free to expand, the increase in temperature of water is :

136. One mole of an ideal gas at 300 K in thermal contact with surroundings expands isothermally from 1.0 L to 2.0L against a constant pressure of 3.0 atm. In this process, the change in entropy of surroundings (ΔS_{surr}) in $J\,K^{-1}$ is : $(1\,L\,atm = 101.3\,J)$

137. How many times a diatomic gas should be expanded adiabatically to reduce its root mean square speed to half ?

138. What is ΔG for the reaction $X_2O_4(\ell) \longrightarrow 2XO_2(g);$; at $27°C$. Given ΔU and ΔS are 2.1 k $cal\,mol^{-1}$ and $20\,cal\,K^{-1}mol^{-1}$.

139. The enthalpy of a system increases by 50 kJ when its internal energy is increased by 113 kJ. What is the pressure in k Nm^{-2} of the system if the volume of gas is reduced by $10^3 m^3$ at constant pressure?

140. A sample of argon gas at 1 atm pressure and $27°C$ expands reversibly and adiabatically from $1.25\,dm^3$ to $2.50\,dm^3$. Calculate the enthalpy change in this process $C_{v.m}$ for argon is $12.48\,JK^{-1}\,mol^{-1}$.